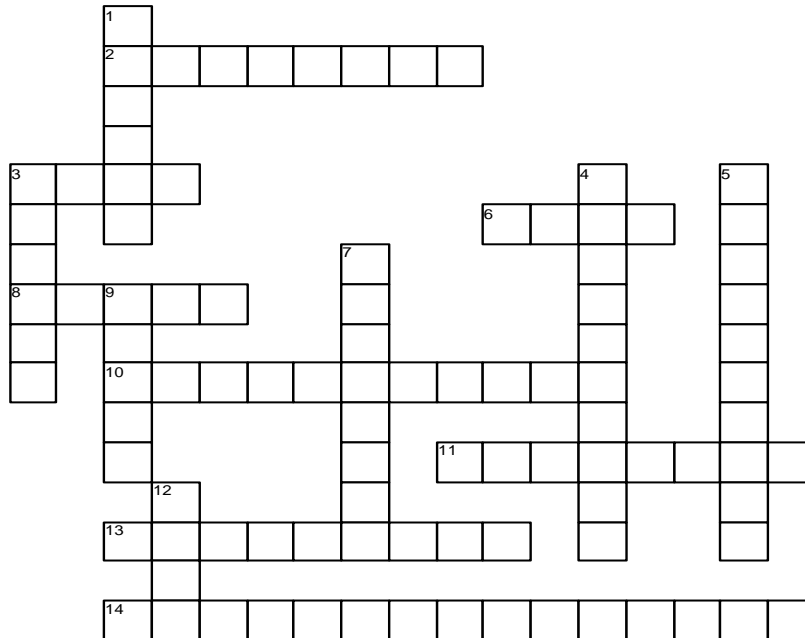


Advanced Engine Performance Diagnosis 8th Edition

Chapter 13

Ignition System Operation, Diagnosis, and Service (Part 1)



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ACROSS

- 2 _____ coil: A transformer-like device in the ignition system that converts the low voltage from the battery into the high voltage required to create a spark at the spark plug.
- 3 Another term for engine knock or detonation, which occurs when the air-fuel mixture in the combustion chamber ignites prematurely.
- 6 _____ effect: A sensor technology used in ignition systems to detect the position of the crankshaft or camshaft, which helps in determining the ignition timing.
- 8 _____ sensors: Sensors used to detect engine detonation. They send a signal to the engine control module (ECM) to adjust ignition timing and prevent engine damage.
- 10 _____ Ignition: An ignition system that uses a mechanical distributor to route high voltage from a single ignition coil to the appropriate spark plug via spark plug wires.
- 11 _____ pulse alternator: A type of sensor used in ignition systems to detect the position of the crankshaft or camshaft, similar to a pickup coil.
- 13 _____ cylinders: Refers to pairs of cylinders that reach top dead center (TDC) at the same time, one on the compression stroke and the other on the exhaust stroke.
- 14 _____ induction: The principle by which an ignition coil produces high voltage. It involves generating a current in a conductor (the coil winding) by moving a magnetic field.

DOWN

- 1 _____ line: The part of the ignition waveform that shows the voltage required to ionize the air in the combustion chamber and create a spark at the spark plug.
- 3 _____ coil: A sensor used in older ignition systems to trigger the ignition module by generating a signal as the engine rotates, based on the position of the distributor or crankshaft.
- 4 _____ Ignition: A type of ignition system that does not use a distributor. Instead, it uses sensors and electronic modules to control the ignition timing and deliver the spark to the correct cylinder.
- 5 Also known as knock or ping, it is an abnormal combustion event where the air-fuel mixture ignites prematurely, causing a sharp, metallic knocking sound and potentially damaging engine components.
- 7 _____ timing: The precise moment when the spark plug fires to ignite the air-fuel mixture in the combustion chamber. Proper ignition timing is critical for engine efficiency and performance.
- 9 Firing _____: The specific sequence in which the cylinders fire in an internal combustion engine.
- 12 _____-on-plug: A type of ignition system where each cylinder has its own ignition coil placed directly above or near the spark plug.